CLAIMS

1. An ultrasonic probe having:

a piezoelectric element for transmitting and receiving ultrasonic waves;

a backing load member placed on a rear surface of said piezoelectric element; and

a heat conduction material which is placed inside said backing load member or a part thereof and whose thermal conductivity is greater than a thermal conductivity of said backing load member.

2. An ultrasonic probe having:

a plurality of piezoelectric elements, which are arrayed in one direction, for transmitting and receiving ultrasonic waves;

a backing load member placed on rear surfaces of said plurality of piezoelectric elements; and

one or more sheet-shaped heat conduction materials which are placed in parallel along an array direction of said piezoelectric elements and a depth direction inside said backing load member and whose thermal conductivities are greater than a thermal conductivity of said backing load member.

3. The ultrasonic probe according to claim 1 or 2, characterized in that an end portion of said piezoelectric element side of said heat conduction material has the shape inclined to a surface of said backing load member side of said piezoelectric element.

4. The ultrasonic probe according to claim 3, wherein an angle between an inclination plane of the end portion on said piezoelectric element side of said heat conduction material and a direction vertical to the rear side of said piezoelectric element is 40 degrees or less or an angle where a critical angle of the ultrasonic waves is subtracted from 90 degrees.

5. The ultrasonic probe according to claim 1, wherein a heat radiating block which is connected to said heat conduction material and whose thermal conductivity is greater than the thermal conductivity of said backing load member.

6. The ultrasonic probe according to claim 5, wherein said heat radiating block is placed on the rear surface of said backing load member and wherein said heat conduction material is further placed between said heat radiating block and said backing load member.

7. An ultrasonic probe including:

a plurality of piezoelectric elements which are divided by division grooves in one direction and transmit and receive ultrasonic waves;

a backing load member placed on rear surfaces of said plurality of piezoelectric elements; and

block-shaped heat conduction materials which are placed on a rear surface of said backing load member and are greater than a thermal conductivity of said backing load member,

wherein said division grooves are formed on said backing load member at depths where they do not reach said heat conduction materials.

8. An ultrasonic probe including:

a plurality of piezoelectric elements which are divided by division grooves in one direction and transmit and receive ultrasonic waves;

a backing load member placed on rear surfaces of said plurality of piezoelectric elements; and

block-shaped heat conduction materials which are placed on a rear surface of said backing load member and are greater than a thermal conductivity of said backing load member,

wherein said division grooves are formed at depths where they reach said heat conduction materials and wherein said backing load member is formed on a concave and convex surface formed on surfaces of said heat conduction materials through said division grooves.

9. The ultrasonic probe according to any one of preceding claims 1, 7 and 8, wherein as said heat conduction material, any material of PGS graphite sheet with high degree of orientation where polymeric film is graphitized, graphite, carbon nano-tube, aluminum nitride, boron nitride, silicon carbide, beryllium oxide, copper and aluminum is used.